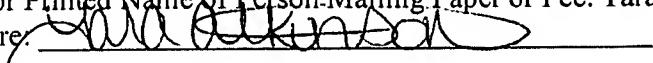


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PATENT
Docket No. P1571

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES**

APPELLANT: JENNIFER WANG
MIKE BARSKY

SERIAL NO.: 10/781,353

EXAMINER: ANH D. MAI

FILED: FEBRUARY 17, 2004

ART UNIT: 2814

TITLE: VIA FORMED IN POLYMER LAYER

**MAIL STOP APPEAL BRIEF-PATENTS
COMMISSIONER FOR PATENTS
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ALEXANDRIA, VA 22313-1450**

APPLICANT'S REPLY BRIEF

To the Commissioner:

Applicant submits this brief in reply to the Examiner's Answer mailed October 7, 2008.

As set forth in Applicant's Appeal Brief, this Reply Brief and the file history, it is respectfully submitted that the claimed invention is patentable over the cited art. Reversal is respectfully requested.

I. Rejections Are Fatally Dependent Upon Lin '369

As set forth in appellants' opening brief, Claims 22 through 27 include, as a critical element of the claimed invention, a via with a hybrid internal geometry comprising a cylindrical lower portion and a tapered upper portion, each portion being of varying relative magnitude depending upon the respective claim (hereinafter referred to as "the claimed via geometry").

The examiner's opposition on appeal makes clear that the underlying final rejection of claims in this matter on the grounds of anticipation (Claims 22 and 25) and obviousness (Claims 23, 24, 26, 27) is fundamentally based upon Lin '369. In this respect, the anticipation rejections are based upon the examiner's contention that the claimed invention is identically disclosed in Lin '369. Similarly, the obviousness rejections are based on Lin '369 plus additional teachings (regarding via aspect ratio and sub-micron dimensionality). In short, the rejection rises or falls on the question of whether Figure 10 in Lin '369 teaches both the claimed via geometry and how to create such a via.

Reliance upon Lin '369 is fundamentally flawed. In this regard, the examiner has inferred a teaching from Lin '369 that is not present therein; that is, that the drawings of Lin '369 contain an enabling disclosure of a via with a taper extending into its depth, resulting in a via geometry comprising a tapered top portion and a cylindrical bottom portion. Lin '369 contains no such teaching, is not an enabling disclosure of the current invention, and therefore is not an anticipatory reference.

II. Lin '369 Fails to Teach the Claimed Via Geometry

In order to support a rejection on the basis of anticipation, the cited prior art must exhibit a substantial representation of the invention *in such full, clear and exact terms that one skilled in the art may make, construct and practice the invention without having to depend on either*

the present invention disclosure or on his own inventive skills. (*Seymour v. Osborne* (1870) 78 U.S. 516, 555; *In re Paulsen* (Fed. Cir. 1994) 30 F.3d 1475, 1479; see also 1-3 Chisum on Patents §3.04[1].) Mere vague and general representations will not suffice as anticipation, as the knowledge supposed to be derived from the publication must be sufficient to enable those skilled in the art or science to understand the nature and operation of the invention, and to carry it into practical use. (*Seymour, supra* 78 U.S. at 555.)

In support of the anticipation (and obviousness) contention regarding via geometry, the examiner points solely to Lin '369, Figure 10. Here, the examiner has improperly added the label "tapered (sic.) sidewall" to Figure 10 without any substantiation from the specification of claims in the patent. In fact, aside from his label, there is no other indication that Figure 10 was ever intended to disclose anything other than a conventional via. Given the larger context of the Lin '369 specification *language*, the round via shoulder depicted in Figure 10 seems more likely the result of casual draftsmanship rather than an intent to specifically show any particular or unconventional geometry within the via itself.

To be clear, anticipation cannot be predicated on teachings in a reference that are vague or based on conjecture. (*W.L. Gore & Assoc. v. Garlock, Inc.*, (Fed. Cir. 1983) 721 F.2d 1540, 1554.) Indeed, prior art does not anticipate when the current invention has major element not present in the cited prior art. (*Cool-Fin Electronics Corp. v. International Electronic Research Corp.* (9th Cir. 1974) 491 F.2d 660, 662.)

Contrary to the examiner's conclusion, Lin '369 is replete with references to the *conventionality* of via structures contemplated and the methods for creating them. Time and again, Lin '369 discusses the geometry and dimensions of the vias contemplated by the invention disclosed therein, never mentioning any taper or anomalous geometry other than a conventional

cylindrical via. (See Lin '369, Column 9, Lines 19-30; Column 12, Lines 41-60 and Figures 1, 2, 4, 5a, 6e.)

III. Unsubstantiated Conclusions Regarding Basic Skill in the Art are Impermissible

Lin '369 also fails to state any means for achieving the claimed via geometry, instead expressly stating that vias contemplated by the patent and disclosed therein "can be defined by conventional processes of photolithography or laser drilling." (Lin '369, Column 11, Lines 20-25.) Neither of these conventional processes are disclosed as being capable or even plausible methods for creating the claimed via geometry, as taught by the current application. Rather, new methods as disclosed by the current application are required to achieve the claimed via geometry.

Notably, the examiner has not cited any prior art standing for the proposition that the claimed via geometry can be achieved by conventional photolithography or laser drilling. This failure to set forth substantive reasons for the examiner's conclusion ignores the rule that deficiencies of the cited prior art references cannot be remedied by general, unsubstantiated conclusions about what is "basic knowledge" or "common sense" to one of ordinary skill in the art. (*In re Zurko* (Fed. Cir 2001) 258 F.3d 1379, 1385.) However, this is exactly what the examiner has done in this matter. The examiner has taken an ambiguous drawing, extrapolating from it—based upon no specific reference to any other prior art whatsoever—that one skilled in the art would be able to fabricate the claimed via geometry. This is impermissible.

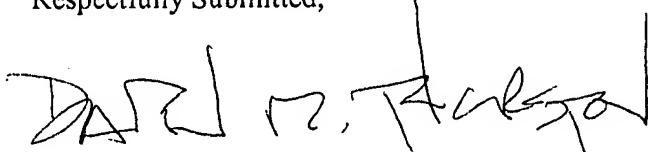
The question that the examiner must answer, with substantiation, is whether one skilled in the art could create the claimed via geometry solely from reading Lin '369, *and without using any of his or her own inventive skill or reviewing the teachings of the current application*. To this question, the answer must be no; there simply is no such teaching in Lin '369 or the remaining prior art references, when combined. Indeed, the examiner has not pointed to any

aspect of the collective cited prior art that would constitute an enabling disclosure or adequate teaching as to the creation of the claimed geometry, instead relying *solely* upon the ambiguous illustration in Figure 10.

IV. Obviousness Rejections Fail Based Upon Their Reliance Upon Lin '369

The examiner's other subsequent obviousness arguments, pertaining to criticality of result (with respect to via size range or aspect ratio) and design choice, are premised upon an acceptance of the examiner's proposition that Lin '369 adequately discloses the claimed via geometry and therefore, when considered in combination with the other cited teachings, renders the remainder of the claims obvious. However, the failure of that preliminary inference (as discussed above) therefore requires consequent rejection of the remainder of the examiner's obviousness arguments.

Respectfully Submitted,



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DMT/tna
December 5, 2008
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